

CLAIMS

What is claimed is:

1. An electronic apparatus (2, 8, 14) forming a sensor, an actuator or a control and comprising a control engine (7, 13, 19) as well as an integrated bus interface (3, 9, 16) via which the apparatus (2, 8, 14) can be connected to a data bus (1) for the communication of the apparatus (2, 8, 14) with at least one further apparatus (2, 8, 14) connected to the data bus and forming a sensor, an actuator or a control, with the communication, i.e. the transmission and/or reception of data taking place via the data bus (1), taking place via any desired pre-determined communications protocol (bus protocol), characterized

in that the control engine (7, 13, 19) includes an application-specific engine (5, 12, 18) and a bus protocol-specific engine (4, 10, 17) which are decoupled from one another and exchange application-specific data via a pre-determined, standardized interface (6, 11, 20);

in that the bus protocol-specific engine (4, 10, 17) is made for the transmission and/or reception of data via the bus interface (3, 9, 16);

in that the application-specific engine (5, 12, 18) is made for the control of the apparatus (2, 8, 14) independently of the bus protocol used; and

in that data received via the standardized interface (6, 11, 20) can be converted into the bus protocol by the bus-protocol-specific engine (4, 10, 17); and/or

data received via the bus interface (3, 9, 16) can be converted into corresponding application-specific data by the bus-protocol-specific engine (4, 10, 17).

2. An apparatus in accordance with claim 1, characterized

in that the control engine (13, 19) includes a plurality of bus protocol-specific engines (10, 17) of which each is associated with a respective one of a plurality of different bus protocols; and

in that each bus protocol-specific engine (10, 17) is respectively made for the conversion of the application-specific data into the bus protocol associated with it and/or for the conversion of the data received via the bus interface (9, 16) in the bus protocol associated with it into the application-specific data.

3. An apparatus in accordance with claim 2, characterized in that a different bus interface (9, 16) is associated with each bus protocol-specific engine (10, 17).

4. An apparatus in accordance with claim 2, characterized in that at least some of or all of the bus protocol-specific engines are associated with a single bus interface; and in that a selection unit is provided for the selection of the respective bus protocol-specific engine to be used.

5. An apparatus in accordance with claim 4, characterized in that a manual selection of the bus protocol-specific engine takes place via the selection unit.

6. An apparatus in accordance with claim 4, characterized in that the selection unit is made for the automatic selection of the bus protocol-specific engine in dependence on the respective currently used bus protocol.

7. An apparatus in accordance with claim 1, characterized in that a set of elements is predetermined for the communication with the control engine (7, 13, 19) which each define a type of permitted application-specific data.

8. An apparatus in accordance with claim 7, characterized in that variables and/or methods and/or messages and/or events are pre-determined as the elements.

9. A configuration apparatus for an electronic apparatus (2, 8) in accordance with claim 1, wherein the configuration apparatus (14) is likewise made in accordance with any one of the preceding claims and the application-specific engine (18) of the configuration apparatus (14) forms a configuration engine whose standardized interface (20) is the same as the standardized interface (6, 11) of the apparatus (2, 8) to be configured.

10. A configuration apparatus in accordance with claim 9, characterized in that application-specific pre-determined settings of the apparatus (2, 8) to be configured can be read out and/or set via the configuration apparatus (14).

11. A configuration apparatus in accordance with claim 9, characterized in that the configuration apparatus (14) is made as a computer, in particular as a PC or as a handheld (PDA), and the configuration engine (18) as well as the bus protocol-specific engine (17) are each made as computer programs.

12. A bus system comprising a data bus (1) and a plurality of apparatuses (2, 8, 14) in accordance with claim 1 connected to the data bus (1).